



20 tonne target for irrigators

Bryan Clark
Executive Officer, IREC

IN A NUTSHELL

- ▶ Irrigators of the southern Murray-Darling Basin are being challenged to produce 20 t/ha each year
- ▶ Four new projects in the region will assist irrigators by providing information, field testing crop options and rotations, and demonstrating irrigation systems, to determine the best practices for highly profitable, highly productive and sustainable irrigation farming
- ▶ The project outcomes will be relevant and practical to irrigators in the Lachlan, Murrumbidgee, Murray and Goulburn valleys of NSW and Victoria.

New crop options, new crop rotations, old rotations on new layouts, and state-of-the-art irrigation technology will be under scrutiny in one way or another, in four new research and extension projects. The projects will aim to consolidate current knowledge and generate information so that irrigators can rise to the challenge to produce 20 t/ha from their land, or return \$2000/ha, each year.

Funding for the projects, which will benefit all irrigators in the southern Murray-Darling Basin, has been secured by the Irrigated Cropping Forum (ICF) and the Irrigation Research and Extension Committee (IREC). Three projects will be managed by the ICF:

- Lifting Irrigated Cropping Profitability and Water Use Efficiency (NSW)
- Lifting Irrigated Cropping Profitability and Water Use Efficiency (Vic)
- Oilseed Industry Development Officer for southern NSW and Victoria

and a fourth will be managed by IREC:

- Best Practice in Water Use Efficiency at the Coleambally Demonstration Farm

Lifting Irrigated Cropping Profitability & Water Use Efficiency

Two GRDC supported projects with this title will be conducted simultaneously in NSW and Victoria.

New South Wales

The rationale behind the NSW project is that State and Federal governments have been encouraging for some time for improved water use efficiency but have provided limited support to assist farmers with this challenge. Research into higher value cropping sequences and rotations has been conducted, however this information has not resulted in any major change in farm practices.

The last few seasons has driven farmers to look at ways to

maximise whole farm income in years with reduced water availability. NSW Department of Primary Industries shows that at allocation levels below 50%, most irrigation farmers in the Murrumbidgee Valley cannot make a positive cash flow using the traditional farming systems (see pp 49-51 of this edition, 'The effect of different water allocations on rice farm profitability'). Anecdotal reports from the Lachlan Valley indicate that farmers with little or no irrigation water over the last few years have reverted to dryland farming systems using winter cereals and lucerne, and abandoned higher value irrigated crops due to the high costs and associated risks. Northern Victoria is experiencing significant shifts in water distribution due to trading, with aging farmers choosing to trade water and retain their land. However, some farms are now "stranded", ie cannot be economically supplied with irrigation water based on traditional farming. In these areas there is a need to develop higher value farming systems.

These situations potentially face all irrigation areas and there is a need to dramatically lift the level and value of production from traditional irrigation farms in the four valleys covered by the ICF.

The key areas of action for the NSW project are described as follows:

- *To better understand* on-farm water delivery systems and management systems to maximise the returns and water use efficiency from the irrigation systems and layouts, particularly newer layout styles.
- *To fully understand* the capacity of each system and how to best manage each – there is little point attempting to encourage farmers to change irrigation practices if they ultimately can't produce an economic return from the investment.
- *To consolidate and generate* extension material so that farmers and their advisers can confidently attempt higher value production from their current or evolving systems – good information exists about growing rice and wheat but



what, for example, is the regime required to produce 8 t/ha of malting barley or 4 t/ha of soybeans?

- To provide additional resources to extend the current knowledge within the Cropcheck system to crops other than rice and encourage greater use of the system so that it forms a continuous improvement system for non-rice crops within the rice rotation and crop sequence.

Victoria

In the Victorian project, Victorian Irrigated Cropping Council (VICC) and Murray Research and Development Council (MRDC), in conjunction with the Department of Primary Industries Victoria, are investigating the opportunities to improve the profitability and water use efficiency of irrigated cropping. Double cropping systems (growing a winter and a summer crop over the one year) provide the opportunity for farmers to capitalise on their investment in irrigated agriculture.

Previous research has been conducted to investigate the potential of double cropping systems, however there has been little adoption of the practice in northern Victoria or southern NSW. The project aims are as follows:

- To demonstrate various rotations to highlight the opportunities and barriers to making the double cropping system work, covering issues such as stubble management, harvest and sowing conflicts between summer and winter crops, and the best combination of winter and summer options.
- To demonstrate the best management practices for the individual crops, covering issues such as nutrient budgeting and irrigation scheduling – best management practices have been identified for most crops but rotation systems involving double cropping have been neglected.
- To investigate the potential to make use of water "left over" from the previous crop to increase the water use efficiency of the entire farm system, reduce accessions to the groundwater, and reduce nutrient loading of streams and groundwater.

Ultimately the goal of this project is to lift the productivity, profitability and water use efficiency of irrigation farming within the southern Murray-Darling Basin and to provide the mechanisms and support network to achieve this.

The outcomes of these two sister projects are expected to be:

- an irrigated farming system that can demonstrate that 20t/ha annual production is consistently achievable
- a best management practice guide and other opportunities for extension to encourage adoption of the double cropping farming system
- more understanding and more widespread adoption of profitable, water use efficient irrigation and cropping systems by irrigators from northern Victoria through to the Lachlan Valley in NSW

Oilseed Industry Development Officer for southern NSW & Victoria

An oilseed industry development officer will ensure the expansion of oilseed crops (with a focus on canola and soybeans) for the irrigation and dryland areas of southern NSW and Victoria. The project is jointly funded by the GRDC and the Australian Oilseeds Federation, and will be managed by the ICF.

The oilseed industry, particularly under irrigation, has been in decline for some time due to a lack of industry support in an agronomic sense and grower support in an economic sense.

Canola production, both dryland and irrigated, has suffered from yield decline although the crop is recognised as greatly beneficial as a break crop in winter cereal rotations. Canola is also recognised as having significant properties for soil conditioning in intensive cropping regimes.

Soybean production in the Riverina area has declined to less than 10,000 tonnes production and is now in danger of being relegated to only minor and opportunistic production.

Representing irrigators

The Irrigated Cropping Forum began life around 1990 when irrigators across the whole of the southern Murray-Darling Basin realised they must band together to identify and progress research priorities, and demonstrate cross border and national level linkages to research, if they were to be successful in seeking support from major R&D organisations. Since 1990 the ICF has held a number of triennial research forums and eventually became an incorporated body to manage funds directly.



IRRIGATED CROPPING FORUM

The ICF member organisations represent irrigated agriculture in the Lachlan, Murrumbidgee and Murray valleys in NSW and the Goulburn-Murray area in Victoria. The constituent bodies are:

- LIRAC – Lachlan Irrigation Research Advisory Council (Lachlan Valley)
- IREC – Irrigation Research and Extension Committee (Murrumbidgee Valley)
- MRDC – Murray Research and Development Council (NSW Murray Valley)
- VICC – Victorian Irrigated Cropping Council (Victorian Murray and Goulburn valleys)

These organisations provide the local valley links and research priorities to the ICF. The current chairman is Professor Shahbaz Khan, Charles Sturt University, Wagga Wagga. IREC currently provides secretariat services for the ICF.



Other oilseed crops like sunflowers and safflower are also only produced in limited quantities. These crops have lost favour to winter cereals and other summer crops where greater support and farm returns have been evident.

There is strong interest in developing a higher value irrigated cropping rotation system that involves shorter season, higher value crops in rotation with rice or in fact to replace rice rotations in some areas. A theoretical rotation may include canola, soybeans, barley and maize.

The oilseed industry has also not had the focus in some areas in southern NSW and Victoria that the grains industry has had in terms of best practices for high yields and there is a feeling that the application of better nutrient management and layouts in both dryland and irrigation situations could have a major impact on the production of oilseeds in these regions.

The oilseed industry development officer will address the decline in the capacity of state based agency staff to concentrate on oilseeds production and to recreate the linkages between researchers, breeders, advisory and technical staff of state agencies and commercial providers and the growers. It is expected that the officer will be in place to commence the summer cropping season this year.

Best Practice in Water Use Efficiency at the Coleambally Demonstration Farm


This project will demonstrate state-of-the-art surface irrigation techniques and technology. The project will be conducted on a 16 ha block at the Murrumbidgee Shire Community Experimental Demonstration Farm (the Demo Farm) at Coleambally. This is an IREC project in conjunction with the Coleambally Community Demonstration Farm funded by the Waterwise Communities Fund of the National Water Initiative.

A paddock layout that will demonstrate "lateral beds in bays" will be established using precision agriculture and new auto-steering technology. It will include bay automation and a

demonstration of new flume gate water metering devices. Accurate monitoring is an essential prerequisite to determining water use efficiency and the scope for increasing water use efficiency.

The project will provide a demonstration site to encourage farmers to see "at a paddock scale" the technology and potential for the production of rice and subsequent winter cereals and summer crops in rotation with rice, to improve water use efficiency and diversification within rice-based farming systems.

The project will also complement other trials on adjacent areas of the Demo Farm that include a comparison of maize production under three irrigation technologies: overhead sprinkler, buried drip tape and conventional bed layouts (see pp 35–38 in this edition, 'Maize under flood, drip & sprinkler irrigation'). Over the past three years, the Demo Farm has been visited by several hundred farmers from southern NSW, many tertiary students, and numerous international visitors from around the world. It is an excellent site for demonstrating state of the art technology in water management.

The Irrigated Cropping Forum acts on the directives established by irrigators throughout the southern Murray-Darling Basin. We hope the planned projects improve the businesses and environments of all irrigators and their communities, and we encourage all farmers in the region to participate and assist in these projects. 

Further information

Bryan Clark
IREC
T: 02 6960 1550
E: bryan@irec.org.au

Sam Lolicato
VICC
T: 03 5824 1406
E: vicc@iinet.com.au